

Notice of Allowability

Application No.

10/764,499

Examiner

Kevin M. Bernaltz

Applicant(s)

NOLAN, THOMAS PATRICK

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview of 8/3/06.
2. ☒ The allowed claim(s) is/are 1-25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20060804.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Examiner's Amendment

1. Claims 1 and 18 are generic and allowable. Accordingly, the restriction requirement as to the encompassed species is hereby withdrawn and claims 7 – 9, 19 and 20, directed to the species of magnetic layers comprised of an hcp material are no longer withdrawn from consideration since all of the claims to this species depend from or otherwise include each of the limitations of an allowed generic claim.

In view of the above noted withdrawal of the restriction requirement as to the linked species, applicant(s) are advised that if any claim(s) depending from or including all the limitations of the allowable generic linking claim(s) be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

2. An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. Authorization for this Examiner's amendment was given in a telephone interview with Bernard Codd on August 3, 2006.

The application has been amended as follows:

- Claim 1, line 3: after “thereon” the following phrase was inserted: “, wherein said at least one pair of stacked magnetic layers are vertically spaced apart by an amorphous spacer layer”;
 - Claim 1, line 5, after “layers”, the following phrase was inserted:
“closest to a common spacer layer in overlying sequence”;
 - Claim 1, at the end of the claim the following phrase was inserted: “ by virtue of having laterally displaced, uncorrelated grain boundaries”;
- Claim 2, lines 1 – 2: the phrase “at least one pair of stacked magnetic layers are vertically spaced apart by” was replaced with the phrase “spacer layer is”
 - Claim 2, line 2: the phrase “, amorphous or nano-crystalline” was deleted;
- Claim 8, line 3: the phrase “or nano-crystalline” was deleted;
- Claim 11, line 4: the phrase “or nano-crystalline” was deleted;
- Claim 16, line 5: after “surface”, the following phrase was inserted: “, wherein said at least one pair of stacked magnetic layers are vertically spaced apart by an amorphous spacer layer”;
 - Claim 16, line 7: before “layers”, the word “magnetic” was inserted;
 - Claim 16, line 7: after “layers”, the following phrase was inserted:
“closest to a common spacer layer in overlying sequence”; and
 - Claim 16, at the end of the claim the following phrase was inserted: “
by virtue of having laterally displaced, uncorrelated grain boundaries”;

- Claim 17, line 2: the phrase “step (b) comprises forming” was replaced with the phrase “said spacer layer”;
 - Claim 17, line 2: the phrase “, amorphous or nanocrystalline spacer” was deleted;
 - Claim 17, line 3: the phrase “between vertically adjacent ones of said magnetic layers” was deleted;
- Claim 20, line 4: the phrase “or nano-crystalline” was deleted; and
- Claim 22, line 5, the phrase “or nano-crystalline” was deleted.

Drawings

4. The drawings were received on May 23, 2006. These drawings are accepted.

Reasons for Allowance

5. The present claims are deemed allowable over the references of record since the references of record fail to disclose or render obvious the claimed structure.

While Ikeda et al. disclose a perpendicular magnetic recording medium comprising spaced apart magnetic layers, Ikeda et al. fail to teach or render obvious spacing the layers apart by an amorphous spacer layer wherein the magnetic layers have the same preferred out-of-plane crystal growth orientation but the grain boundaries are not in vertical alignment due to having laterally displaced, uncorrelated grain boundaries.

Litvinov et al. (U.S. Patent No. 6,630,255 B1) disclose stacked perpendicular magnetic layers, but like Ikeda et al., does not teach or render obvious spacing the layers apart by an amorphous spacer layer wherein the magnetic layers have the same preferred out-of-plane crystal growth orientation but the grain boundaries are not in vertical alignment due to having laterally displaced, uncorrelated grain boundaries.

Miyabayashi (U.S. Patent No. 4,810,592) disclose stacked magnetic layers wherein a grain suppression layer of silver (Ag) is formed between the magnetic layers to suppress the grain growth. However, Miyabayashi fails to teach or render obvious using an amorphous spacer layer, where the Examiner notes that silver layers are explicitly taught to be polycrystalline by applicants (*specification, page 9, lines 5 – 7*).

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

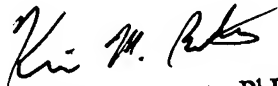
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
August 4, 2006


Kevin M. Bernatz, PhD
Primary Examiner